



Innovation in Competency-Based Assessment Methods: An Effort to Implement Pedagogical Competence at SMKN 1 Pangaribuan

Wirda Manalu¹, Rencan C. Marbun²

¹Student, Pendidikan Profesi Guru, Fakultas Ilmu Pendidikan Kristen, IAKN Tarutung

²Lecturer, Fakultas Ilmu Pendidikan Kristen, IAKN Tarutung

*correspondence: wirdamanalusmk@gmail.com

ABSTRACT

Competency-based assessment is an essential approach in vocational education that emphasizes the holistic measurement of students' competency achievement. The implementation of this assessment method requires teachers to possess strong pedagogical competence, particularly in designing and applying valid and reliable assessment instruments. This study aims to explore innovations in competency-based assessment methods implemented at SMKN 1 Pangaribuan and to analyze the role of teachers' pedagogical competence in the process. The research employed a qualitative descriptive method using a case study approach. Data were collected through observations, in-depth interviews, and document analysis related to the implementation of competency-based assessment. The findings reveal that teachers at SMKN 1 Pangaribuan have developed various authentic assessment instruments covering the evaluation of attitudes, knowledge, and skills. These instruments are designed to comprehensively measure students' competencies in accordance with curriculum demands and industry requirements. Furthermore, the study found that teachers' pedagogical competence—including understanding students' characteristics, mastering subject content, and designing effective learning strategies—contributes significantly to the effectiveness of competency-based assessment implementation. Nevertheless, the study also identified several challenges, such as limited resources and the need for ongoing teacher training in the development of assessment instruments. These findings underscore the importance of strengthening teachers' pedagogical competence and providing institutional support to optimize the implementation of competency-based assessment in vocational education.

Keywords: *Competency-Based Assessment, Pedagogical Competence, Vocational Education, Assessment Innovation, SMKN 1 Pangaribuan*

INTRODUCTION

Vocational education plays a strategic role in preparing students to enter the workforce with relevant skills and knowledge. In the Indonesian context, the revitalization of

vocational education has become a government priority agenda aimed at improving the quality of competent human resources capable of competing in the global labor market. One of the key components in enhancing the quality of vocational education is an assessment system that not only measures cognitive learning outcomes but also reflects practical skills, professional attitudes, and students' overall work readiness. In line with this, competency-based assessment serves as a fundamental approach in vocational education curricula, emphasizing learning outcomes as the primary benchmark. Competency-based assessment is designed to evaluate students' achievements comprehensively, encompassing cognitive, affective, and psychomotor domains. In practice, this type of assessment requires teachers to develop authentic and contextual instruments such as project assignments, performance tasks, portfolios, case studies, and observations of attitudes and skills (Arifin, 2017). This model aims to provide a more accurate and meaningful picture of students' actual abilities, ensuring that vocational graduates not only master theoretical knowledge but are also capable of applying it in real-life situations resembling the workplace.

However, the successful implementation of competency-based assessment is inseparable from the quality of teachers' pedagogical competence (Wibowo, 2023). Pedagogical competence, as one of the core components of professional competence, includes the ability to design instructional strategies, select appropriate assessment methods, and manage the teaching–learning process effectively. Teachers with strong pedagogical competence are better able to align assessment approaches with student characteristics, the nature of the skills being assessed, and the learning context in vocational education settings. Conversely, inadequate pedagogical competence can undermine the quality of the assessment process, preventing the optimal achievement of competency-based learning objectives (Anderson, 2019). In the context of SMK Negeri 1 Pangaribuan—a vocational school in the Tapanuli region with challenging geographical and social conditions—innovation in assessment methods represents a form of adaptation to both the demands of the national curriculum and the dynamics of the local environment. Teachers in this school face challenges in developing assessment systems aligned with the revised 2013 curriculum and the Merdeka Belajar paradigm, which emphasizes competency-based and differentiated learning. Despite limited facilities and resources, teachers have initiated various efforts to design more relevant and contextual assessments, including the integration of technology into the assessment process and the development of performance-based rubrics (Brookhart, 2021). This study aims to identify and analyze the forms of innovation in competency-based assessment methods implemented by teachers at SMKN 1 Pangaribuan, as well as to examine the extent to which pedagogical competence contributes to the successful implementation of such assessments. This inquiry is significant, as few studies have specifically explored the relationship between teachers' pedagogical competence and assessment innovation in vocational education, particularly in schools located in non-urban areas (Daryanto, 2020). Accordingly, this research seeks not only to provide an empirical account of competency-based assessment practices in the field but also to contribute theoretically to the discourse on the role of pedagogical competence in transforming vocational education. It is expected that the findings will serve as a reference for educational policy development, teacher training, and quality improvement in vocational school assessment practices,

especially in facing the era of disruption and digital transformation that demands adjustments across all aspects of learning.

METHODS

This study employed a qualitative descriptive approach with a case study design focusing on the implementation of competency-based assessment at SMKN 1 Pangaribuan. This approach was chosen to gain an in-depth understanding of innovations in assessment methods and the role of teachers' pedagogical competence within this context. Data were collected through several techniques, namely participatory observation, semi-structured interviews, and document analysis. Participatory observation was conducted by attending and directly observing the teaching and assessment processes in purposively selected classes. The purpose of these observations was to identify the assessment methods employed by teachers, the nature of teacher–student interactions, and the ways in which assessment instruments were applied in practice. Semi-structured interviews were conducted with vocational subject teachers who were directly involved in competency-based assessment. These interviews aimed to gather insights into teachers' understanding of competency-based assessment, their experiences in developing and implementing assessment instruments, and the challenges they encountered in the process. In addition, interviews were also conducted with students to obtain their perspectives on the effectiveness and relevance of the assessment methods applied. Document analysis was carried out on various relevant materials, such as the curriculum, syllabi, lesson plans (RPP), assessment sheets, and student evaluation results. The purpose of this analysis was to evaluate the alignment between planned learning activities, field implementation, and student outcomes, as well as to assess the extent to which innovations in competency-based assessment were systematically implemented.

The data analysis process employed thematic analysis techniques. Data from interviews, observations, and documents were examined in depth to identify key themes related to innovations in assessment methods and the contribution of teachers' pedagogical competence. The analytical steps included data reduction, data presentation, and the drawing and verification of conclusions. Data validity was ensured through source and technique triangulation, member checking, and peer discussions among the researchers. The research subjects consisted of five vocational subject teachers from the Computer and Network Engineering program and the Light Vehicle Engineering program, selected based on their experience and involvement in implementing competency-based assessments. In addition, ten students from each vocational program participated as informants to strengthen the data from the learner's perspective. Through this approach and methodology, the study aims to provide a comprehensive portrayal of the dynamics of innovation in competency-based assessment methods at SMKN 1 Pangaribuan and to identify supporting and inhibiting factors in its implementation, particularly those related to teachers' pedagogical competence.

RESULT AND DISCUSSION

The implementation of competency-based assessment at SMKN 1 Pangaribuan demonstrates a systematic effort by both the school and teachers to translate curriculum principles into tangible classroom assessment practices. Assessment is no longer confined to written tests as the sole indicator of student achievement, but also encompasses project assignments, performance tasks, portfolios, and attitude observations, directly measuring the three main domains of competence: knowledge, skills, and attitudes. The teachers participating in this study have developed various authentic assessment instruments that reflect the demands of the professional workplace. For instance, in the Computer and Network Engineering program, students are assessed on their ability to design and implement a simple computer network using both simulation software and actual hardware. Assessment is conducted using pre-designed rubrics that cover aspects such as process, technical accuracy, documentation, and technical communication (Popham, 2019). This approach enables teachers to evaluate students objectively while encouraging them to practice in realistic contexts that represent workplace environments. Innovation in assessment methods is also evident in the use of digital technology as part of the evaluation process. Several teachers utilize online applications such as Google Classroom and Quizizz to conduct formative and summative tests. These tools not only facilitate data collection but also accelerate real-time analysis of student learning outcomes. Additionally, the use of video as a medium for performance tasks has become common practice, whereby students record the process of completing their projects, and the videos become part of a digital portfolio assessed qualitatively by the teachers (Harlen, 2018).

Teachers' pedagogical competence plays a central role in supporting these innovative practices. Teachers with a deep understanding of competency-based assessment principles demonstrate greater ability in designing accurate, fair, and transparent assessment instruments. They are also more reflective in evaluating the effectiveness of the tools used and more open to feedback from students to improve the quality of learning. Such teachers do not act merely as evaluators but also as facilitators and mentors, helping students understand success criteria and encouraging autonomous learning. Nevertheless, this study also reveals challenges teachers face in optimizing the implementation of competency-based assessment. One of the main issues is the high administrative workload. Planning, conducting, and reporting results for competency-oriented assessments require more time and effort than conventional assessments. Teachers must prepare various rubric formats, document each student's learning process, and ensure the accuracy of individual assessment reports. This challenge is compounded by the limited number of teachers in certain vocational programs, forcing some to handle multiple classes simultaneously. There is also an urgent need for ongoing professional development in assessment instrument design. While some teachers exhibit strong competence, others still struggle to integrate authentic assessment consistently into the learning process. This suggests that strengthening pedagogical competence cannot be achieved instantly but requires systematic and continuous professional mentoring. In addition to administrative and training challenges, institutional support is a decisive factor in the success of assessment innovations. This includes providing adequate facilities such

as technology for digital assessment, industry-standard practice spaces, and school management policies that are responsive to teachers' professional development needs. At SMKN 1 Pangaribuan, the principal actively encourages teachers to participate in training and workshops on competency-based assessment organized by the Education Office and credible private institutions. This underscores that the success of innovation is not solely the teachers' responsibility but requires collective commitment and collaboration among all school stakeholders.

Student involvement in the assessment process is one of the notable innovations identified in this study. Teachers do not merely evaluate students unilaterally but engage them in self-assessment and peer-assessment. This practice enables students to gain a deeper understanding of success criteria and develop metacognitive skills. In some cases, students are even allowed to design the format of their final project presentations, provided they meet the agreed assessment indicators. This fosters a dialogical space between teachers and students in determining the form and direction of learning, ultimately enhancing students' motivation and sense of responsibility for their own learning. Another identified innovation is the adaptation of assessment approaches to individual student needs. Teachers recognize that not all students share the same learning styles and pace of comprehension. Consequently, some have developed differentiated assessment schemes, offering flexibility in final task formats, completion times, and levels of complexity based on students' readiness levels. This practice is a direct manifestation of pedagogical competence in the form of differentiated assessment. While this strategy is not yet applied uniformly across all vocational programs, its presence indicates a growing professional awareness among teachers of the importance of aligning assessment with learner characteristics. An equally important finding is the integration of competency-based assessment with the reinforcement of character values. Teachers assess not only students' technical achievements in vocational practice but also incorporate aspects of work ethics, discipline, and responsibility as part of the evaluation. These character values are included in attitude assessment rubrics, which are regularly scored through direct observation and student reflection journals. Thus, assessment functions not only as a measurement tool but also as a means of continuous character development.

Interviews reveal that most teachers believe competency-based assessment compels them to continually learn and update their teaching strategies. Some acknowledge that planning such assessments requires creativity and a deep understanding of learning outcomes as well as real industry conditions. They find the MGMP (Subject Teacher Forum) particularly helpful as a collaborative space to exchange ideas, share best practices, and provide feedback on the assessment formats used. This forum plays a strategic role in collectively enhancing teachers' pedagogical capacity. From the students' perspective, authentic and work-relevant assessments significantly increase learning motivation. They prefer project-based and performance assessments because they feel these reflect their real abilities more accurately than multiple-choice or essay tests. Several students also appreciate receiving constructive feedback from teachers after the assessment process, as it helps them identify both strengths and weaknesses. Personalized feedback further strengthens positive teacher–student relationships. However, not all students can easily adapt to the competency-based assessment model.

Some struggle with time management in project completion or experience anxiety during direct performance evaluations. Teachers with high pedagogical competence respond empathetically by providing additional guidance, clarifications, or flexible deadlines to ensure students can achieve competency targets without undue stress. This humanistic and adaptive approach is key to ensuring fairness in the assessment process.

Analysis of documents such as syllabi, lesson plans, and rubrics indicates that most have been developed in accordance with competency-based assessment principles. The rubrics contain clear, measurable indicators relevant to the basic competencies outlined in the curriculum. Nevertheless, variations in instrument quality remain among teachers, particularly regarding the clarity of rubric descriptors and consistency in scoring scales. This suggests that although the competency-based assessment paradigm is broadly understood, further technical capacity building is needed to produce more precise and standardized instruments. Overall, this study shows that innovation in competency-based assessment methods at SMKN 1 Pangaribuan has advanced significantly in terms of form, approach, and embedded values. Teachers' pedagogical competence plays a decisive role in the successful implementation of these innovations. Teachers capable of designing adaptive learning, creating appropriate instruments, and conducting reflective evaluations are able to establish assessment processes that not only measure but also promote meaningful learning. The findings imply that in the context of vocational education, competency-based assessment is inseparable from teachers' pedagogical competence. Assessment innovations cannot operate optimally without strong conceptual understanding and practical skills in integrating pedagogical principles into evaluation practices. Therefore, systematic provision for continuous professional development, collaborative forums, and managerial support from school leaders and education authorities is urgently needed. Moreover, this innovative approach can serve as a broader learning model for application in other vocational schools, especially in regions with similar geographical and resource characteristics. The successful practices at SMKN 1 Pangaribuan illustrate that limitations are not insurmountable barriers when there is strong collective commitment and professional awareness among teachers and school stakeholders. Accordingly, this study recommends documenting and disseminating innovative practices as part of a national strategy to improve the quality of education.

Conclusion

This study demonstrates that innovation in competency-based assessment methods at SMKN 1 Pangaribuan has undergone significant development, characterized by the implementation of various authentic assessment strategies such as performance tasks, projects, digital portfolios, and the integration of technology into the assessment process. Teachers at this school have actively integrated the principles of competency-based assessment into contextualized learning practices that are relevant to the demands of the workplace. This indicates a sound understanding of assessment as an integral part of the learning process rather than merely a tool for measuring learning outcomes. The role of teachers' pedagogical competence is crucial in supporting the success of this innovation. Teachers with strong pedagogical mastery are able to design standardized, objective, and fair assessment instruments, while also adapting the assessment process to the

characteristics and individual needs of students. The use of structured rubrics, joint reflection sessions with students, and the application of differentiated assessment strategies demonstrate the maturity of teachers' professional skills in managing learning holistically. Beyond that, teachers have also been able to make the assessment process a vehicle for character building, soft skills development, and the enhancement of students' reflective abilities. Nevertheless, challenges remain. Administrative workload, limited time, and varying technical abilities among teachers in developing assessment instruments pose significant obstacles that require serious attention. Therefore, sustained institutional support is needed in the form of training, provision of adequate facilities, and the strengthening of teacher learning communities to encourage systematic capacity building. School principals and education stakeholders must foster a conducive ecosystem for pedagogical innovation, including in the area of assessment.

Furthermore, this study affirms that the effective implementation of competency-based assessment methods is not determined solely by the instruments used, but by the way teachers conceptualize, design, and carry out assessments as part of meaningful learning. In other words, the success of assessment innovation depends heavily on teachers' capacity for reflection, creativity, and sensitivity to classroom dynamics and student needs. The implications of this study are significant for the development of vocational education policy in Indonesia. The best practices found at SMKN 1 Pangaribuan can serve as an inspiring model for other schools seeking to improve the quality of assessment. Dissemination of innovative practices, strengthening of competency-based teacher training, and collaboration between educational institutions are strategic steps that should be continually pursued to realize vocational education that is adaptive, relevant, and transformative. In this way, teachers' pedagogical competence will remain the primary foundation for establishing an assessment system that is not only fair, but also meaningful and empowering for students in a holistic manner.

BIBLIOGRAPHY

- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2019). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.
- Arifin, Z. (2017). *Evaluasi Pembelajaran: Prinsip, Teknik, dan Prosedur*. Remaja Rosdakarya.
- Brookhart, S. M. (2021). *How to create and use rubrics for formative assessment and grading* (2nd ed.). ASCD.
- Daryanto, & Karim, S. (2020). *Penilaian Otentik: Menilai Kompetensi Peserta Didik Sesuai Tuntutan Kurikulum 2013*. Gava Media.
- Dirjen Vokasi Kemendikbud. (2022). *Panduan Penilaian Berbasis Kompetensi di SMK*. Jakarta: Direktorat Jenderal Pendidikan Vokasi.
- Harlen, W. (2018). *Assessment & Learning*. SAGE Publications.

- Hidayati, R., & Utama, S. (2021). Inovasi pembelajaran dan penilaian di era digital: Studi kasus di SMK. *Jurnal Pendidikan Vokasi*, 11(2), 145–155. <https://doi.org/10.21831/jpv.v11i2.40320>
- McMillan, J. H. (2020). *Classroom assessment: Principles and practice for effective standards-based instruction* (7th ed.). Pearson Education.
- Popham, W. J. (2019). *Transformative assessment*. ASCD.
- Wibowo, S. (2023). Analisis penerapan penilaian autentik dalam pembelajaran berbasis kompetensi di SMK. *Jurnal Evaluasi Pendidikan*, 14(1), 23–35. <https://doi.org/10.24036/jep.v14i1.39876>